EPA United States Environmental Protection Agency

Air Quality Planning and Standards

The Ambient Air Monitoring Program

Between the years 1900 and 1970, the emission of six principal pollutants increased significantly. These six pollutants, also called criteria pollutants, are: particulate matter, sulfur dioxide, carbon monoxide, nitrogen dioxide, ozone, and lead. In 1970, the Clean Air Act (CAA) was signed into law. The CAA and its amendments provides the framework for all pertinent organizations to protect air quality. EPA's principal responsibilities under the CAA, as amended in 1990 include:

- setting National Air Quality Standards (NAAQS) for pollutants considered harmful to the public health and environment
- ensuring the air quality standards are met or attained (in cooperation with the States) through national standards and strategies to control air emission standards from sources
- ensuring the sources of toxic air pollutants are well controlled
- monitoring the effectiveness of the program.

One way to protect and assess air quality was through the development of an Ambient Air Monitoring Program. Air quality samples are generally collected for one or more of the following purposes:

- To judge compliance with and/or progress made towards meeting ambient air quality standards.
- To activate emergency control procedures that prevent or alleviate air pollution episodes.
- To observe pollution trends throughout the region, including non-urban areas.
- To provide a data base for research evaluation of effects: urban, land-use, and transportation planning; development and evaluation of abatement strategies; and development and validation of diffusion models.

With the end use of the air quality samples as a prime consideration, the network should be designed to meet one of four basic monitoring objectives listed below:

1. To determine highest concentrations expected to occur in the area covered by the network;
2. to determine representative concentrations in areas of high population density;
3. to determine the impact on ambient pollution levels of significant sources or source categories; and
4. to determine general background concentration levels. Cedar Bluffs

These four objectives indicate the nature of the samples that the monitoring network will collect which must be representative of the spatial area being studied.
The EPA's ambient air quality monitoring program is carried out by State and local agencies and consists of three major categories of monitoring stations, State and Local Air Monitoring Stations (SLAMS), National Air Monitoring Stations (NAMS), and Special Purpose Monitoring Stations (SPMS), that measure the criteria pollutants. Additionally, a fourth category of a monitoring station, the Photochemical Assessment Monitoring Stations (PAMS), which measures ozone precursors (approximately 60 volatile hydrocarbons and carbonyl) has been required by the 1990 Amendments to the Clean Air Act.

Return to top
Return to Main Menu